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Conjugated polyions

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Propositions

accompanying the dissertation

Conjugated polyions

Polymers with ionic, water-soluble backbones

by

Thomas P. Voortman

1. The paper titled “Rational Design of High Performance Conjugated Polymers for Organic Solar Cells” fails to supply *rational* design rules for conjugated polymers.
– Macromolecules **45**, 607 (2012).
2. The habit of reporting the highest value of number-average molecular weight given by GPC without any interpretation results in a distorted view of the *real* molecular weight of conjugated polymers.
– Sci. Rep. **2**, 754 (2012).
3. Laboratory derived power conversion efficiencies are a poor figure of merit for the development of new OPV materials and, instead, optimizing performance with industrial viable processing techniques should be emphasized.
– Adv. Energy Mater. **5**, 1402186 (2015).
4. The development of materials that are not intrinsically scalable or processable in an industrial viable manner does not contribute to the wide-spread commercialization of OPV.
5. Expecting high degrees of polymerization without proving the purity of your monomers and solvent(s) in a step-growth copolymerization is folly.
– Trans. Faraday Soc. **32**, 39 (1936)
6. The combination of low molecular weight, rigidity, and strong π - π stacking, due to extended conjugation, can outweigh unfavorable thermodynamics of mixing typically observed with conventional polymers.
7. The definitions “water-processable” and “water-soluble” are not interchangeable and the former does not imply the latter.
8. A fitting title for this thesis could have been: “Fifty shades of yellow”.